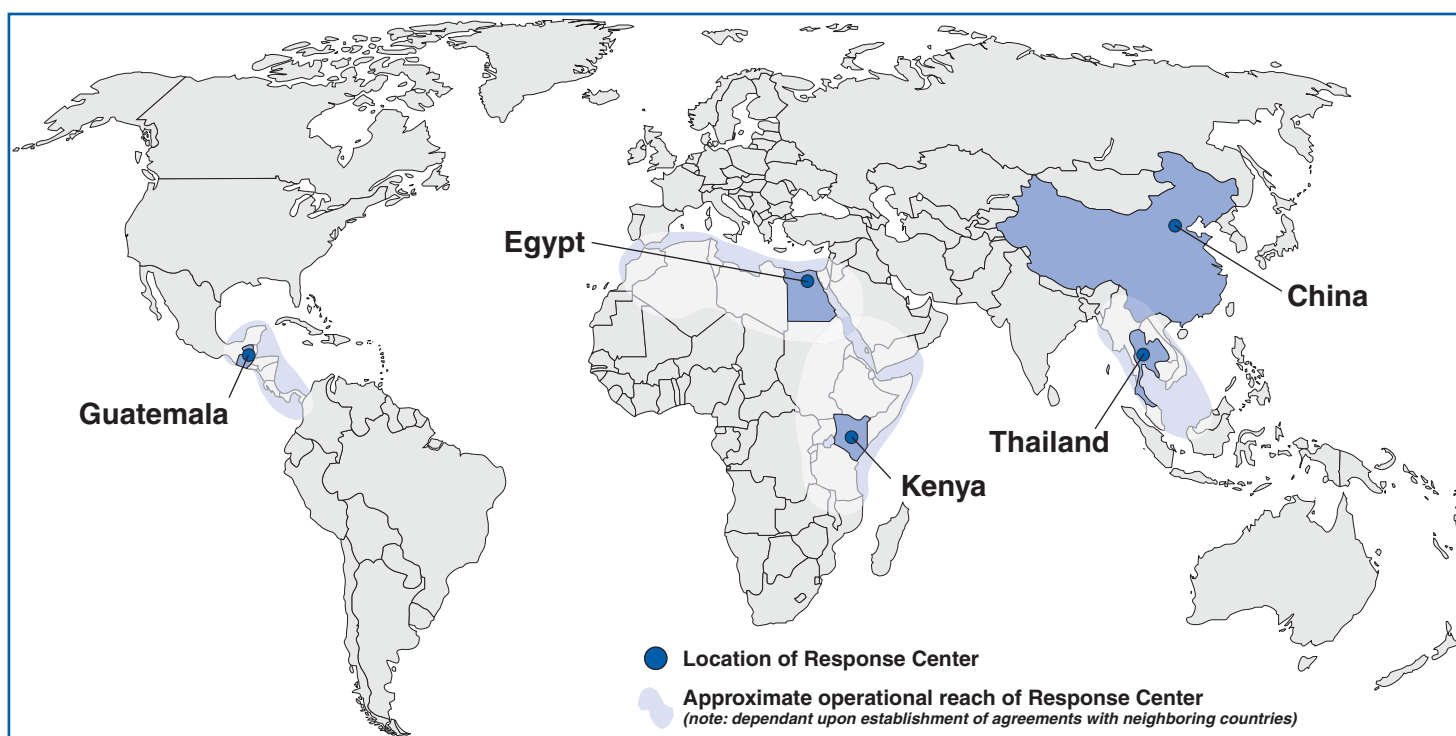




# Global Disease Detection 2006

## CDC-Funded Global Disease Detection Response Centers



*“The notion of trying to control a pandemic at its source would have been considered laughable just a few years ago...  
but it is nevertheless incumbent on the global community to try to contain it”*

*Arnold S. Monto, M.D.  
NEJM 2005;352:323*

## What is Global Disease Detection?

CDC's vision for Global Disease Detection (GDD) is to protect the health of Americans and the global community by developing and strengthening global, regional, and local public health capacity to rapidly detect and respond to global emerging infectious diseases and bioterrorist threats. GDD builds upon proven, effective interventions and approaches including disease surveillance and state-of-the-art laboratory and epidemiologic science. Through effective coordination of CDC resources and expertise, GDD will enable the agency to more rapidly and effectively respond to any infectious disease that may emerge internationally.

To implement this strategy GDD focuses on five key pillars of activity:

- Outbreak Investigation and Response
- Surveillance (epidemiology, laboratory)
- Research
- Training
- Networking (communication, partnerships)

Also key to the strategy is the establishment of GDD Response Centers strategically positioned around the world to provide assistance to countries to address major public health threats at home and abroad.

## GDD Response Centers

GDD Response Centers are CDC-funded international centers of excellence in emerging infectious disease outbreak detection, identification, tracking and response, particularly as they relate to outbreaks of transnational concern. The GDD Response Centers comprise three main elements: a broad emerging infections program, training for scientists on field epidemiology and laboratory methods, and a specialty group focused on influenza surveillance and detection.

### Global Disease Detection: A Public Health Issue

Experience with SARS demonstrated that a highly pathogenic infectious disease in a remote region of the world can spread around the world in a matter of days, or weeks. Diseases such as SARS and avian influenza threaten the lives of Americans and others around the world. The World Health Assembly endorsed in 2005 the first major revision of the International Health Regulations since 1969. The revised regulations state that public health incidents can pose threats beyond national borders. For that reason, Member States bear a responsibility to the global community to identify, report, and when possible, contain public health threats before they become Public Health Emergencies of International Concern. Building on CDC's existing emerging infectious disease strategies, using lessons learned from SARS and driven by concern about the mounting threat of avian influenza, GDD represents a major U.S. contribution to this new system of global disease protection. GDD works with the World Health Organization (WHO) ensure that all countries have ready access to the resources needed to detect and contain global disease threats.

Currently CDC operates GDD Response Centers in Thailand and in Kenya and will have functioning Response Centers in Guatemala, China, and Egypt by the end of 2006. Each GDD Response Center will serve as a regional resource to assist not only the host country but also neighboring countries that lack fully developed capacity of their own.

Together with host and partner countries' Ministries or Departments of Health, GDD Response Centers provide support to national and regional laboratories and epidemiology programs within their respective WHO regions. During emergencies, the GDD Response Centers function as members of the Global Outbreak Alert and Response Network (GOARN) under WHO's leadership. In non-emergency settings, the GDD Response Centers work with country partners to implement disease detection and response interventions.

Locations for Response Centers are selected, in consultation with invited countries and with internal experts, national and international partners, on the basis of:

- *Public health significance:* Countries have a high population density or history of infectious diseases or expected potential for emerging diseases.
- *Established CDC presence:* CDC staff are working in country and have an established, effective working relationship with host governments.
- *Country commitment:* The country supports and values partnership with CDC and will actively engage in collaborative activities and identify counterparts with which to work.
- *Regional reach:* The country has the infrastructure and regional stature to serve as a regional resource, or is already acting as a regional leader in other arenas.
- *International partner presence:* WHO, US Department of Defense, UNICEF, the World Bank and other partners are operating within the country.

## An Urgent Threat: Pandemic Influenza

GDD Response Centers help detect, confirm, and contain a variety of emerging diseases that pose a substantial threat not only to the people of the affected country, but also to other countries in the region or the rest of the world. Foremost among such threats is that posed by avian influenza. GDD Response Centers continue to make significant contributions to pandemic influenza preparedness, including facilitating the development and implementation of National Preparedness Plans, building national and regional laboratory capacity needed to detect a potential pandemic influenza virus, strengthening or establishing reliable surveillance systems for severe respiratory infection,

and establishing, training, equipping and exercising rapid response teams. When avian influenza was detected in Nigeria in Spring 2006, the Kenya GDD Response Center - together with CDC's Global AIDS Program and the Influenza Division - organized an international training for more than 40 lab technicians and public health staff from 14 African nations, and covered topics including rapid response capacity for containment and hands-on diagnostic training. Since then the Response Center has continued to work with countries in sub-Saharan Africa to develop country preparedness plans, train rapid response teams, and build surveillance systems to link the region together.

## What Do GDD Response Centers Do?

During the past year, Response Centers and related programs at CDC have conducted a variety of activities in support of the GDD mission. Selected achievements include:

### Outbreak Response

The GDD Response Centers collectively investigated more than 60 disease outbreaks, including cases of avian influenza, hemorrhagic fever, meningitis, cholera, and unexplained sudden death. The Thailand GDD Response Center responded with CDC staff and antitoxin to one of the largest reported outbreaks of botulism in the country, helping to prevent dozens of cases of paralyses and deaths.

### Surveillance

The Guatemala GDD Response Center synchronized community-based surveillance protocols with sites in Thailand and Kenya to enable cross-country comparison of data, and provided technical assistance to Ministries of Health in Honduras and Guatemala to improve their national epidemiological surveillance systems.

The Response Center in Kenya is conducting sentinel surveillance for influenza and acute febrile illness, and conducted H5N1 surveillance of migratory birds as part of multi-country collaboration.

### Research

The Thailand GDD Response Center discovered several new pathogens in Thai pneumonia patients, including bocavirus and *Legionella longbeachea* for the first time in Thailand, and *Bartonella tamii*, identified for the first time anywhere in the world.

### Training

GDD Response Centers, through the Field Epidemiology Training Program (FETP), help to strengthen in-country and regional public health capacity for outbreak detection and response. For example, in China 31 FETP graduates and 24 current officers represent 26 provinces in the country; 20 of the graduates now hold key positions in emergency response or infectious disease departments of 14 provinces and China CDC.

The Kenya Response Center trained 20 laboratory scientists from 14 countries on testing and confirmation of highly pathogenic avian influenza virus.

### Networking

Staff from existing Response Centers participated in a rapid response training for avian and pandemic influenza, developed and hosted by the Thailand GDD Response Center. The training included more than 100 rapid responders from 14 countries.

## GDD Operations Center

The GDD Operations Center, currently under development, will serve as CDC's central analytical clearinghouse and coordination point for international outbreak information gathering and response. Information about outbreaks worldwide will be collected from existing and new sources, including GDD Response Centers, CDC programs, and a wide range of public and private sources including the World Health Organization, the Department of State,

USAID, the Department of Defense, the Global Public Health Information Network, and other government and nongovernmental organizations. Information will be analyzed using the expertise of hundreds of scientists from across the agency to help determine the level of threat to public health posed by a given event and guide the appropriate level of response.

## CDC and its Partners: Building a Global Network

Global Disease Detection represents a partnership between CDC and the host and participating neighbor countries. CDC also works with a variety of partners, domestically and internationally, to implement the GDD strategy, including

the World Health Organization, the Training Programs in Public Health Interventions Network, Ministries of Agriculture, the U.S. State Department, USAID, UNICEF, the World Bank and non-governmental organizations.

## Future Directions

To achieve its GDD vision CDC aims to build a global network, comprised in part through strategically located Response Centers throughout the world, to help build sufficient capacity to effectively address emerging health threats around the world.

Ongoing and planned activities include:

- Continued support of currently funded GDD Response Centers in Thailand, Kenya, China, Egypt and Guatemala.
- Establishment of the GDD Operations Center.
- Incremental addition of new GDD Response Centers as resources allow, to expand global coverage.
- Increased collaborations with the World Health Organization, the US Department of Defense, and other key global and domestic partners towards establishment of a global network.



*As part of the rapid response training, Dr. Patrick Blair from NAMRU-2 in Indonesia reviewed laboratory methods to sample collection, transport, and processing.*

**For more information about the projects and program described here, please contact:**

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